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Wearable tech: a growing payment opportunity

An SPA White Paper

July 2017

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1. Introduction

From watches, wristbands and jewelry to glasses and clothing, the popularity of wearable technology is booming. Despite a relatively slow start, industry analysts estimate that 48 million wearable tech units were shipped in 2016. And, according to data from IDC, fitness bands topped the best sellers list, accounting for 85% of last year's market.

Despite all the hype surrounding smart wearables – including devices like the Apple Watch - for the moment it appears that basic wearable devices reign supreme. But IDC predicts that, as user tastes evolve, the opportunity for smart wearables – multi function devices equipped with third-party applications - is set to burgeon. And payment looks like being the transformational application that captures the public imagination and drives the mass take-up of wearable tech.

Indeed, according to Gartner, half of consumers in major markets – including North America, Japan and Western Europe – will be using a combination of smartphones and wearables to make payments by 2018.

The appeal of wearable payment for consumers is easy to understand. The ability to use items worn on the body to quickly and easily pay for goods and services takes the convenience of mobile and contactless payment to a new level. Payment providers, meanwhile, are seizing on the world of possibilities wearable tech opens up.

But the more sensitive the data stored on such 'devices', the more tantalizing become the opportunities for cyber criminals and fraudsters. So what are the security issues, and how can these be addressed?



This paper explores wearable tech from a payments perspective, analyzing the current market and evaluating the future prospects it affords consumers, institutions, and the wider payment ecosystem.

2. Wearable tech: a brief history

While the explosion of portable computing in the 1990s set the wearable concept of wearables in motion, the technology took a back seat as mobile phones became the consumer gadget of choice. But the launch of the pioneering Fitbit in 2009 tapped into a resurgent interest in wearable tech, and in 2012 Pebble technology Corporation developed the first commercially successful smartwatch which paved the way for today's Android and Apple smartwatch devices.

Recent years have seen a plethora of innovations – everything from jewelry and clothing to smart glasses and Virtual Reality (VR) tools like Oculus Rift. Today, smart wearable tech is being used in variety of applications –including personal and business computing, fitness tracking, navigation and healthcare monitoring.

But it's the potential of wearable payment devices like smart watches, wrist bands, key chains and fitness trackers that is currently exciting market analysts. And, as we'll see, wearable payment tech is evolving fast.

It's a booming market. According to ABI Research, global wearable device shipments are set to hit more than 500 million by 2021. Furthermore, analysts estimate 20% of these devices will be 'connected' with a payment, transport or access control application.



3. Wearable payment: the current state of play

The most common types of wearable payment devices merchants are likely to encounter today include smartwatches and fitness trackers fitted with contactless payment technology. These include Apple Watch (Apple Pay), Samsung's Gear S2 smartwatches (Samsung Pay) and Jawbone's fitness tracking wristband, the UP4 (which syncs with a user's Amex Card and utilizes NFC to support wearable payment). In February 2017 the much awaited roll-out of Android Wear 2.0, Google's smartwatch operating system, at last enabled contactless payment for Android smartwatches equipped with NFC.

But wearable payment has been around for a while now. In the UK for example, Barclays first trialed its bPay technology back in 2012 and in 2015 launched three fully 'open market' bPay products – a wristband, fob and sticker – which enabled users to attach any VISA or MasterCard debit or credit card to make contactless payments. Since then over 100,000 bPay products have been sold and used to make a million transactions totaling just over £5 million.

More recently, Barclays has released bPay Loop, a device which slides onto the strap of any watch or fitness tracker to add payment functionality. Users simply add funds to the digital wallet linked to the device and can then use it to pay for transactions of £30 and under at over 400,000 locations across the UK.

In summary, wearable payment technologies are evolving fast towards an integrated solution and a variety of tried and tested open-loop and closed-loop options are currently available on the market:

- ▶ Stickers: mini contactless cards backed with an adhesive liner to be placed on an end-user's favorite device (typically mobile phones). Stickers can support all major payment schemes and open and closed loop payments
- ▶ Fobs/tags: essentially small contactless cards, fobs/tags can be inserted into wearables. Fobs/tags support open and closed-loop payment and are easy to deploy and personalize
- ▶ Mobile applications: users control fob device via their mobile, and can credit their prepaid account. Supports closed and open-loop payment
- ▶ Fully integrated within the wearable device (fitness tracker/watch/eyeglasses/jewelry): can be connected to a user's mobile device and are app driven. They support closed and open-loop payment

A number of ready-to-use certifications (applets) are also in use: these include payment, access control and transport.

4. Market take-up

Until now the events sector – sports matches, music festivals and theme parks – has proved the most popular use case for wearable payment device shipments. Typically, these 'closed-loop' payment solutions are designed for use in a single or limited/contained environment and are relatively fast and easy to deploy.

In 2015, closed-loop payments accounted for 82% of wearable-device payments; a significant proportion of which were Disney World's Magic Band and other closed-loop applications for specific theme parks, cruise ships, music festivals and so forth.

Wearable payment in transit systems is the next use case set to take off in the next five years; it's projected wearable devices used to make transit payments will increase from 3.5 million in 2015 to 122.6 million in 2020.

But as the wearable payment market matures open-loop payment solutions, which can be used in multiple environments without restriction, will move to the mainstream and are forecast to account for 72% of wearable device shipments used in payments in 2020.



5. Challenges and obstacles to widespread adoption

While the market for wearable payments is still in its infancy, initial indicators are that consumers already used to NFC card 'contactless' payment usage at terminals are keen to embrace the advantages of using this technology.

Indeed, contactless payment is paving the way for a new kind of wearables as consumers become increasingly used to this technology. Which is becoming even faster and more convenient as point sale infrastructure and devices are upgraded. For more on the growing adoption of contactless, go to www.smartpaymentassociation.com and search 'contactless'.

Indeed, wearable payment devices look likely to displace cash at the low-end of the payment spectrum. Quicker and easier to use than other payment factors, early adopters are utilizing

wearables to make small 'on the go' purchases – such as refreshments – when going for a run and limiting what they need to carry when attending major events.

In Australia, Inamo's new CURL solution – a multi-functional wearable which is rugged and waterproof and requires no power to facilitate payment – is being taken up by users who need a solution to the challenge of carrying a wallet or payment card in scenarios when this isn't convenient; participating in sports such as running, swimming or cycling or while at the beach. CURL is also being used for payment on public transport, building access, ticketing for festivals and gym membership, to provide users with one multi-purpose device.

However, for mass market take up to succeed, a number of challenges need to be overcome. These include:

- ▶ The complex ecosystems involved means implementing 'plug-and-play' applications for open-loop use cases remains a protracted process. MasterCard and Visa are both working towards connecting issuers, processors, acquirers, device makers and application developers through unified tokenization (mobile payment) platforms.
- ▶ The provisioning of wearable devices with underlying payment account credentials is a further hurdle. Payment credentials need to be done in a safe and secure manner; during manufacturing, distribution, at the POS, or via a mobile app that connects the wearable item via NFC or Bluetooth. Furthermore, options like decoupled tokenization are being explored to support consumers seeking to link multiple cards to a single NFC wearable device and prioritize which payment option is enabled within that device at any one time.
- ▶ Similarly, an appropriate payment infrastructure needs to be in place. That means the availability of contactless EMV POS terminals must be ubiquitous; and these POS terminals must be capable of supporting a variety of technologies (bar codes, HCE host card emulation, Wi-Fi, embedded



secure elements); and have the ability to differentiate between open and closed loop payment ecosystems.

- ▶ Strong customer authentication regulations in the EU means that for the moment use cases are limited to low value payment scenarios – up to 30 Euros. Anything above this limit requires the entry of a PIN by users at the POS, or a biometric/pattern/PIN if using a mobile phone.

The fast-paced evolution of wearable payment is creating additional challenges. With the emergence of new form factors, it's unclear if the payment industry or consumer manufacturers are in the driving seat. Form factors and functionality will need to be managed and scheme standards and requirements established, applied and policed. At the moment, there's little clarity around the standards that apply to devices manufactured by SPA members and those created by consumer brands that are tapping into a variety of payment ecosystems; for example smart watches and jewelry manufacturers are replacing physical SIMs with downloaded credentials.

Furthermore, challenging discussions are already taking place as it becomes apparent that payment scheme internal processes aren't designed to cope with wearable payment. The SPA has already identified a level of miscommunication and dissonance between APAC, European and US schemes.

Finally, the social security and safety of consumers will need to be taken into consideration. The application of contactless logos on payment devices worn on the body potentially makes the wearer a target when out and about.

6. Going mainstream: the appeal for consumers and payment institutions

The killer feature that may well propel wearables to the next level is that they eventually may well provide users with a 'persistent' digital identity that melds the functions of a driving licence, credit card, house key, car key and computer into one small gadget worn on the body. Disney World's Magic Band already allows visitors to get on rides, pay for food and enter their hotel rooms.

Carmakers like Hyundai are creating apps that let people unlock and start their cars remotely with their watches and phones. Toronto-based wristband maker Nymi has produced a wristband that uses biometrics to streamline employee authentication; biometric authentication prevents another wearer from using it to make a payment or authenticate to a security device. Meanwhile, luxury watch-maker Bulgari plans to roll out a payment-enabled mechanical watch in 2017.

While consumers may initially be sceptical about wearables that provide direct access to bank and credit accounts, NFC-based technology has already gained widespread acceptance and take up. Wearables bring a new era of simplicity to payment 'on the go', providing consumers with a way to consolidate the payment and authentication data in their wallet onto a device that's worn every day while on the go. And that appeals to the digital aspirations of Millennials and Generation Z, who

currently view wearables as on companion devices that complement other mobile technology and fits with what they're doing 'in the moment'.

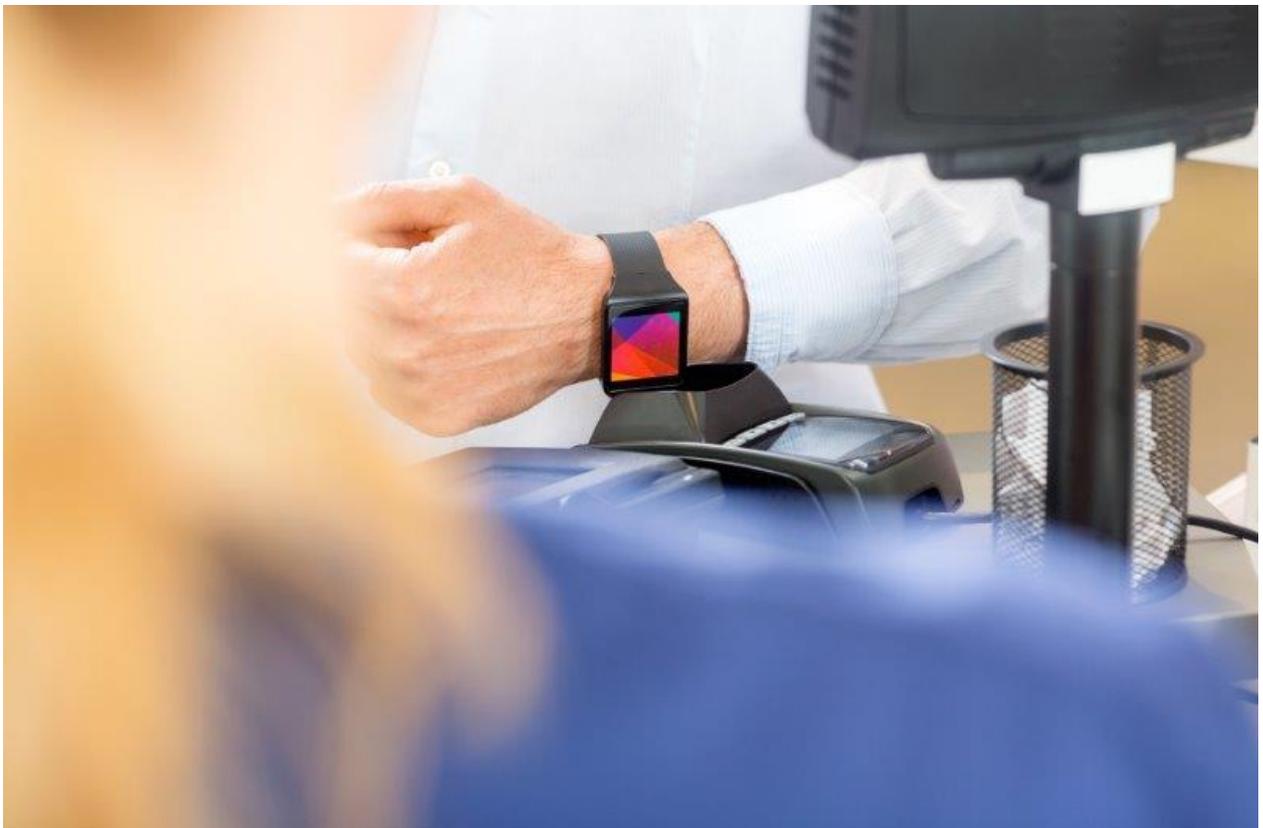
In the future, the technology may well deliver the seamless multi-functional lifestyle integration consumers expect; if everything's connected then, whether you're at work or at leisure, you can access locations, make purchases, travel on public transport, enter your car – and more – with literally just the flick of a wrist.

In recent years financial organizations and consumer brands have launched products onto the market with increasing speed and sophistication, leveraging these innovations to drive mass education and uptake.

Representing an unprecedented opportunity to become top of wallet, eliminate cash, offer consumers new and more convenient digital ways to pay, and gain a more personalized connection to customers, the utility of making wearables a truly useful payment factor has strong appeal for banks and payment card networks. Longer term, it also opens up the way to enable a truly sharing economy of secure peer-to-peer payments.

But this transformational vision will need to take account of the fact that consumers are not exposed to risk. As consumers quantify more of their lives, and capture and store more of their health and biometric data digitally, it's imperative that the ability to revoke any personal information is in place should a wearable device be lost or stolen.

Several device manufacturers say consumers can disable the payment application within their device from a mobile phone, tablet or desktop computer if a device is lost or stolen. Others are adding extra protection by adding pre-paid wallets that contain a limited amount of money that can be used for purchases without a PIN.



And, as we've already seen, both Visa and MasterCard are using tokenization to deliver a multi-layered approach to security, limiting tokens to specific sales channels such as contactless payments.

7. Connecting with consumers: wearable payment solutions

Consumers are hungry for a variety of payment options that support different needs, and widespread acceptance for convenient 'frictionless' payment solutions is growing apace.

Mini-fobs and -tags offer a simple first step on the wearable payment journey and are ideal for creating a need and appetite in the market short term. Acting as a companion device to a user's contactless bank card, it enables consumers to add payment functionality to existing wearable items.

Dedicated payment bands, featuring an embedded NFC tag, provide opportunities to combine payment with other applications like fitness tracking, building entry, public transport travel and so forth.

Finally, embedded NFC solutions in smartwatches, jewelry and clothing enables users to seamlessly link an existing payment card, via their mobile phone, and activate the payment service. Solutions such as this were deployed for the Rio 2016 Olympics.

As the wearable market grows, functionality outside the core application will be key to gaining consumer uptake. But enabling new 'on the go' wearable ways to pay will only gain market traction if interoperable standards are in place, POS infrastructures are ubiquitous, security issues and personal data protection is addressed and the mass market appeal of devices – usable design, fashionable and stylish – is addressed.

As brands and financial organizations look to test the market and develop strategies to adapt card payment models to the wearables sector – moving from card only, to fob/tag and then embedded solutions – the SPA is on hand to help navigate the complex ecosystem which involves device manufacturers, payment tech vendors, regulators and banks. Furthermore, the emergence of wearable payment opens the door to the next secure payment challenge – embedding secure payment authentication into connected IoT devices.

